

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Service, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE August 99		3. REPORT TYPE AND DATES COVERED Final Report: 19 Aug 98 thru 31 Jul 99
4. TITLE AND SUBTITLE Local Area Network (LAN) for System Engineering and Production Directorate (SEPD)			5. FUNDING NUMBERS	
6. AUTHOR(S) Gary A. Maddux				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Univ. of Alabama in Huntsville Huntsville, AL 35899			8. PERFORMING ORGANIZATION REPORT NUMBER 5-20281 & 5-20282	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) AMSAM-RD-SE-TD-DM (CHARLENE BERTUS) U.S. Army Aviation & Missile Command Redstone Arsenal, AL 35898			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution is unlimited.			12b. DISTRIBUTION CODE A	
13. ABSTRACT (Maximum 200 words) The Systems Engineering and Production Directorate (SEPD), Missile Research, Development and Engineering Center (MRDEC), AMCOM has the mission and function to provide systems engineering and analysis for Army developed weapon systems. To facilitate this mission, a high-speed local area network (LAN) segment was required in order for the SEPD elements located within S-wing, Building 5400, to more effectively communicate with internal and external customers. In addition, the Technical Data Management Division, located in Building 5687 required similar LAN connectivity to improve efficiency in areas related to the development, storage, retrieval, and use of large graphics files. Finally, the SEPD required the capability to share software applications from a central server. UAH performed the effort defined below to complete the development and installation of high-speed, integrated LAN connectivity and begin a migration to application sharing.				
14. SUBJECT TERMS local area networking			15. NUMBER OF PAGES 2	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT	

19991004 042

PLEASE CHECK THE APPROPRIATE BLOCK BELOW

DAO# _____

☐ _____ copies are being forwarded. Indicate whether Statement A, B, C, D, E, F, or X applies.

☒ DISTRIBUTION STATEMENT A:
APPROVED FOR PUBLIC RELEASE: DISTRIBUTION IS UNLIMITED

☐ DISTRIBUTION STATEMENT B:
DISTRIBUTION AUTHORIZED TO U.S. GOVERNMENT AGENCIES ONLY; (indicate Reason and Date). OTHER REQUESTS FOR THIS DOCUMENT SHALL BE REFERRED TO (Indicate Controlling DoD Office).

☐ DISTRIBUTION STATEMENT C:
DISTRIBUTION AUTHORIZED TO U.S. GOVERNMENT AGENCIES AND THEIR CONTRACTS (Indicate Reason and Date). OTHER REQUESTS FOR THIS DOCUMENT SHALL BE REFERRED TO (Indicate Controlling DoD Office).

☐ DISTRIBUTION STATEMENT D:
DISTRIBUTION AUTHORIZED TO DoD AND U.S. DoD CONTRACTORS ONLY; (Indicate Reason and Date). OTHER REQUESTS SHALL BE REFERRED TO (Indicate Controlling DoD Office).

☐ DISTRIBUTION STATEMENT E:
DISTRIBUTION AUTHORIZED TO DoD COMPONENTS ONLY; (Indicate Reason and Date). OTHER REQUESTS SHALL BE REFERRED TO (Indicate Controlling DoD Office).

☐ DISTRIBUTION STATEMENT F:
FUTHER DISSEMINATION ONLY AS DIRECTED BY (Indicate Controlling DoD Office and Date) or HIGHER DoD AUTHORITY.

☐ DISTRIBUTION STATEMENT X:
DISTRIBUTION AUTHORIZED TO U.S. GOVERNMENT AGENCIES AND PRIVATE INDIVIDUALS OR ENTERPRISES ELIGIBLE TO OBTAIN EXPORT-CONTROLLED TECHNICAL DATA IN ACCORDANCE WITH DoD DIRECTIVE 5230.25. WITHHOLDING OF UNCLASSIFIED TECHNICAL DATA FROM PUBLIC DISCLOSURE, 6 Nov 1984 (indicate date of determination). CONTROLLING DoD OFFICE IS (Indicate Controlling DoD Office).

☐ This document was previously forwarded to DTIC on _____ (date) and the AD number is _____.

☐ In accordance with provisions of DoD instructions. The document requested is not supplied because:

☐ It will be published at a later date. (Enter approximate date, if known).

☐ Other. (Give Reason)

DoD Directive 5230.24, "Distribution Statements on Technical Documents," 18 Mar 87, contains seven distribution statements, as described briefly above. Technical Documents must be assigned distribution statements.

GARY A. MADDUX

Print or Type Name

Gary A Maddux 26 Aug 99
Authorized Signature/Date

256 890 6343 x 223

Telephone Number

Technical Report 5-20281 & 5-20282
Contract No. DAAH01-98-D-R001
Delivery Order No. 18

**Local Area Network (LAN) for
System Engineering and Production Directorate (SEPD)**

(5-20281 & 5-20282)

Final Technical Report for Period
19 August 1998 through 31 July 1999

August 1999

Prepared by:

Gary A. Maddux

Research Institute
The University of Alabama in Huntsville
Huntsville, Alabama 35899

Prepared for:

U.S. Army Aviation and Missile Command
Redstone Arsenal, AL 35898
Attn.: Ms. Charlene Bertus

DTIC QUALITY INSPECTED 4

PREFACE

This technical report was prepared by the staff of the Research Institute, The University of Alabama in Huntsville. The purpose of this report is to provide documentation of the work performed and results obtained under Delivery Order 18 of AMCOM Contract No. DAAH01-98-D-R001. Mr. James R. Clark was the principal investigator. Ms. Charlene Bertus, Systems Engineering and Production Directorate, Missile Research, Development and Engineering Center, provided technical guidance.

The views, opinions, and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy, or decision unless so designated by other official documentation.

Except as provided by the Contract Data Requirements List DD Form 1423, hereof, the distribution of any contract report in any state of development or completion is prohibited without the approval of the Contracting Officer.

Prepared for: Commander
U.S. Army Missile Command
Redstone Arsenal, AL 35898

I have reviewed this report, dated August 1999 and the report contains no classified information.

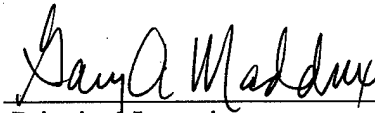

Principal Investigator

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
2.0	OBJECTIVES	1
3.0	STATEMENT OF WORK	1
4.0	CONCLUSIONS AND RECOMMENDATIONS	2

1.0 Introduction

The Systems Engineering and Production Directorate (SEPD), Missile Research, Development and Engineering Center (MRDEC), AMCOM has the mission and function to provide systems engineering and analysis for Army developed weapon systems. To facilitate this mission, a high-speed local area network (LAN) segment was required in order for the SEPD elements located within S-wing, Building 5400, to more effectively communicate with internal and external customers. In addition, the Technical Data Management Division, located in Building 5687 required similar LAN connectivity to improve efficiency in areas related to the development, storage, retrieval, and use of large graphics files. Finally, the SEPD required the capability to share software applications from a central server. UAH performed the effort defined below to complete the development and installation of high-speed, integrated LAN connectivity and begin a migration to application sharing.

2.0 Objective

To meet the networking challenge SEPD required research and analysis of advanced computer networking capabilities currently employed by the Redstone Community. The objective of this task was to research, design and implement where necessary enhancements to the SEPD LAN so that it was fully integrated with other MRDEC/Project Office/contractor computer technologies.

3.0 Statement of Work

The statement of work, as outlined in delivery order 18, was as follows:

- 3.1 UAH shall migrate SEPD network drops in S-Wing, Building 5400, to switched technology. This effort shall include reconfiguring and connecting existing resources to provide necessary bandwidth.
- 3.2 UAH shall research and implement a strategy that shall provide segmentation of the 5400 complex LAN from the high-speed LAN implemented in Paragraph 3.1. This activity shall include development and test of interfaces to the existing electronic communications systems and demonstration of the operation of the total system under normal loading conditions. UAH shall completely document, including network wiring diagrams with room and drop numbers and networking hub configurations, the efforts described above.
- 3.3 UAH shall install and configure additional network drops with switched technology within Building 5687. This activity shall include development and test of interfaces to the existing electronic communications systems. UAH shall completely document, including network wiring diagrams with room and drop numbers and networking hub configurations, the efforts described above.

- 3.4 UAH shall develop and begin implementation of a strategy to provide for software application sharing within SEPD. This effort shall include an analysis of server and network bandwidth requirements necessary to support the sharing of applications across the respective LANs within Buildings 5400, 5687, and 7631. UAH shall document the result of the analysis to include any assumptions used in the analysis and upgrades that may be required to implement the strategy.

4.0 Conclusion and Recommendations

During the time frame allocated by the delivery order, members of the UAH Systems Management and Production Lab, with the cooperation of representatives from AMCOM SEPD and MRDEC, performed an analysis of information and networking technologies to support SEPD efforts. This analysis led to the design and implementation of the SEPD LAN. All efforts for the LAN were documented and delivered to SEPD under separate cover.

The investigation of information and networking technologies included the analysis of current SEPD data sharing requirements. It is recommended that these requirements be revisited periodically to determine the required LAN infrastructure. As the SEPD requires additional capacity and as networking technologies become more advanced, the SEPD LAN should be enhanced to exploit newly developed technologies.